

Tarpon

Megalops atlanticus

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DESCRIPTION

The tarpon is recognized throughout its range as a very highly prized recreational species. It is not utilized for food in the United States. While this species is reserved for recreational fishermen, only a small segment of the state's saltwater fishermen actually target this species. Little research has been done on this species on the east coast of the U.S. north of Florida. State law bans the commercial harvest of this species in state waters.



Taxonomy and Basic Description

Tarpon belong to the family Megalopidae, which is represented by only one species in the eastern and southern United States. Members of this family are noted for their silvery herring appearance with large scales and a compressed and moderately deep body. Tarpon pass through an eel-like leptocephalus stage as young.

The sides of the fish are flat, virtually vertical in profile. The sides and belly are silvery and covered by very large scales; there are 40 to 48 scales present in lateral line. The mouth is superior in position with the lower mandible extending far beyond the upper jaw. The fins are composed completely of soft rays. The dorsal fin has a high anterior lobe sloping with a sharp downward slope posterior ending with the last ray greatly elongated into a heavy filament. The fin contains 13 to 16 soft rays. The caudal fin is deeply forked with the lobes equal in length. The anal fin is inserted behind the dorsal fin base and has a high anterior lobe; the remainder of the fin long and low, ending in an elongated ray that is shorter than that in the dorsal fin. The anal fin has 22 to 25 soft rays. The pelvic fins are positioned in front of the origin of the dorsal fin and contain 13 to 14 soft rays. (Whitehead and Vergara^[BC1] 1978).

Tarpon usually appear dark blue to greenish-black on the back. However, this color may be muted on individuals inhabiting inland waters. The sides and belly are bright silver in color. The dorsal and caudal fins have charcoal tipped margins.

Tarpon are reported to reach sizes of 250 cm (98 inches) (Whitehead and Vergara 1978) and weights of 161 kg (355 pounds) (Claro 1994). Crabtree et al. (1995) reported that females grow more quickly than males and may live longer. Males are reported to reach 43 years of age while females can reach ages of at least 55 years (Crabtree et al. 1995). Sexual maturity for tarpon taken in Florida is reached by 117 cm (70 inches) in males and 128 cm (50 inches) in females

(Crabtree et al 1997). By 10 years of age, all females were found to be sexually mature (Crabtree et al. 1997).

Tarpon are a schooling fish. They are usually found in small groups of 12 or fewer individuals, but will form large schools comprised of over 100 fish.

Status

Tarpon are an apex predator in South Carolina's coastal and estuarine waters. As such, they represent an excellent indicator of the condition of coastal waters for this trophic level.

Tarpon are considered one of the premier recreational species in the Western North Atlantic and support economically important fisheries in areas where they occur in high abundance. No stock assessment has been conducted on tarpon to determine whether the stock is being over fished. With no regional or national fishery management plan in place for tarpon, management of this species rests with each coastal state.

Currently there is virtually no data beyond creel occurrence for the species in South Carolina State waters subsequently their population status is unknown.

POPULATION DISTRIBUTION AND SIZE

Tarpon inhabit a large range of warm temperate to tropical waters on both sides of the Atlantic Ocean (Whitehead and Vergara 1978). In the Western Atlantic, the fish are primarily found in warmer coastal waters with the largest populations found in the Gulf of Mexico off of Florida, and in the West Indies (Smith 1997). However, they have been noted from Nova Scotia south to Argentina and eastward to Bermuda. Tarpon are also noted to enter freshwater (Boseman 1960).

Tarpon found in state waters are presumed to have migrated from points south, probably Florida. This is supported by a recovery of a tagged tarpon released in August 1996 at Hilton Head Island, South Carolina and recovered in June 1997 at Tavernier Key, Florida (R. Wiggers, SCDNR, pers. comm.). They have been captured from the three-mile state territorial limit in coastal waters westward into the estuaries and rivers along the entire coast of South Carolina (pers. obs.). Tarpon will enter the estuaries at all ocean inlets in South Carolina. These fish follow tidal flow moving offshore as much as three miles from the inlets and bays during the ebb tide and move inland as much as seven to ten miles on the flooding tide (pers. obs.). They will occasionally stray up freshwater rivers; one specimen was captured approximately one mile below the Pinapolis Dam at Monks Corner on the Cooper River (pers. obs.). Recreational anglers have tagged tarpon for the Marine Game Fish Tagging Program from April to December. Tarpon begin to appear in state waters as early as April; peak abundance occurs in July and August (Hammond 1988). They usually depart coastal waters in late October through early November, presumably due to declining water temperature.

No work has been done to assess the population size of tarpon along the southeastern coast of the United States or in South Carolina. Subsequently, no information is presently available on the health of the east coast population.

HABITAT AND NATURAL COMMUNITY REQUIREMENTS

Tarpon occur from near shore ocean waters to estuaries and up into freshwater rivers (Boseman 1960). They are primarily found in coastal waters, bays and estuaries, within tropical, subtropical and temperate climates (45° N to 30° S). Although a marine fish, tarpon can tolerate euryhaline environments and often enter river mouths and bays and travel upstream into fresh water (Boseman 1960). In addition, tarpon can also tolerate oxygen-poor environments due to a modified air bladder that allows them to inhale atmospheric oxygen (Smith 1960).

Spawning in Puerto Rico occurs in nearshore waters with tarpon leptocephali larvae arriving in the estuaries in their second stage of metamorphosis (Zerbi et al. 2001). Florida tarpon were reported to spawn from April through July (Crabtree et al. 1997). A similar spawning scenario may occur in South Carolina. Juvenile tarpon are common members of the ichthyofauna found in brackish water impoundments in the early fall (pers. obs.). However, tarpon are not present in these impoundments in the spring, presumably due to escapement and/or die off related to low water temperatures. Tarpon probably enter these impoundments during their annual flooding in late spring as leptocephali larvae. They become trapped in these bodies of waters when the floodgate connections to the estuaries are closed.

CHALLENGES

Catch and release fishing [BC2]by recreational anglers may be a source of adult tarpon mortality. However, Edwards (1998) found a high survival rate, 26 of 27 fish studied, for recreationally caught and released fish in Florida. This would indicate a small latent mortality for the recreational catch and release fishery.

Habitat and water quality are recognized as especially important in the early life stage of marine fish found in estuaries. Any degradation to the estuarine ecosystems could impact the survival, growth and later life of juvenile tarpon that utilize these estuaries as a nursery ground. The impact that many pollutants have on marine fish life cycles are just now being discovered. Thomas (1990) found that four known mammalian reproductive toxins also altered the reproductive endocrine function in female Atlantic croaker, *Micropogonias undulatus*, impairing reproduction. These toxins could have a similar impact on tarpon.

Industrial and municipal sewage discharge along with runoff from agriculture, golf courses and suburban developments negatively affect tarpon and other estuarine fishes. Because of its prevalence in estuaries, tarpon are considered an indicator of the overall health of this ecosystem.

CONSERVATION ACCOMPLISHMENTS

The tarpon was declared a game fish in South Carolina by state law in 1991. This law banned the sale of tarpon and limiting recreational anglers to a possession limit of one fish per person per day.

CONSERVATION RECOMMENDATIONS

- Identify the origin(s) of adult tarpon found in South Carolina and determine length of residence in state waters.
- Information on the temporal/spatial incursion of larval tarpon into South Carolina estuaries is needed to aid in defining spawning activity and larval recruitment.
- Determine essential habitat and water quality needed by tarpon at their various life stages and identify the corresponding areas found in South Carolina.
- Identify primary food sources at the various stages in their life.
- Educate fishermen to employ circle hooks and careful handling practices when releasing this fish. This can be accomplished in part by partnering with fishing clubs and conservation groups to push for stronger conservation ethics among their members can help guide and direct the future of this fishery through community avocation and awareness.

MEASURES OF SUCCESS

Because there are currently no know estimates of population size or trends, it is impossible to identify a measurement of success. However, once monitoring establishes baseline data, the measurement of success will be a stable tarpon population year to year.

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[BC1]No comma here.

[BC2]These are natural threats for which we don't need to take conservation actions.